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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/888,017	06/21/2001	Craig Lyle Stevens		7519

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EXAMINER

MOORE, KARLA A

ART UNIT PAPER NUMBER

1763

DATE MAILED: 04/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

A9

Office Action Summary	Application No.	Applicant(s)	
	09/888,017	STEVENS, CRAIG LYLE	
	Examiner	Art Unit	
	Karla Moore	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-2,4-8,13,15-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,13 and 17-20 is/are rejected.
- 7) ☒ Claim(s) 6-8,15 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1-2, 5, 13, 17 and 19-20 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Publication No. US 2002/0031420 A1 to Kroeker in view of U.S. Patent No. 6,007,675 to Toshima.

3. Kroeker discloses a wafer processing system in Figure 12 substantially as claimed and comprising: a loading station (606); three process chambers (604) maintained at a predetermined pressure during normal operation (page 4, paragraph 41); and a first single-wafer load lock (200, also see Figures 2 and 3) having a single wafer support (Figures 2 and 4A-4D, 234, 240; paragraph 30), the first single-wafer load lock being coupled to receive a wafer originating in the loading station (page 6, paragraph 58), the first single-wafer load lock including a transfer mechanism (204) configured to directly transfer a wafer between the first single-wafer load lock and the process chamber along a substantially straight path.

4. However, Kroeker fails to teach the process chamber having a plurality of processing stations.

5. Toshima teaches the use of a process chamber having a plurality of processing stations for the purpose of exposing substrates to a multiplicity of processing environments within the same process chamber (column 5, rows 66 through column 6, row 11; Figure 4A, Toshima calls it a transfer chamber).

6. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a process chamber with a plurality of processing stations in Kroeker in order to expose substrates to a multiplicity of processing environments within the same process chamber as taught by Toshima.

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7. With respect to claims 2, as noted above, Kroeker discloses the invention substantially as claimed.

8. However, Kroeker further fails to teach a second wafer load lock directly adjacent to said process chamber.

9. Toshiba teaches the use of two load lock chambers so that processing of wafers can continue uninterrupted by a delay caused by the need to open, empty and re-equilibrate a single load lock chamber (abstract). Examiner notes that while not explicitly disclosed it would be obvious for each of the load locks to have a pump dedicated exclusively to evacuating the respective load lock because the load locks are designed to work independently of one another.

10. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a second wafer load lock directly adjacent to the process chamber in Kroeker in order to continue the processing of wafers without delay that may be caused by the need to open, empty and re-equilibrate a single load lock chamber as taught by Toshiba.

11. With respect to claims 5 and 17, the system of Kroeker further comprises an atmospheric robot (Figure 12, 602; page 6, paragraph 58) between the loading station and the single-wafer load lock.

12. With respect to claim 13, each of the load locks has an opening in communication with the processing module (Figure 2, 248) and another opening in communication with the loading station (Figure 2, 266; page 6, paragraph 55).

13. With respect to claim 19, as noted above, the process module comprises a plurality of processing stations (604).

14. With respect to claim 20, Toshiba teaches that each of the stations may have may have an individual temperature control means (heating) for the purpose of obtaining a particular set point for a desired processing application (column 15, rows 31-52 and column 23, rows 36-42).

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15. Claims 4 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kroeker and Toshima as applied to claims 1-2, 5, 13, 17 and 19-20 above, and further in view of U.S. Patent No. 6,042,324 to Aggarwal et al.

16. Kroeker and Toshima disclose the invention substantially as claimed and as described above.

17. However, Kroeker and Toshima fail to teach the loading station as a front opening unified pod (FOUP).

18. Aggarwal et al. teach using a FOUP for the purpose of transferring wafers between apparatus and isolating them from contamination (column 1, rows 11-27).

19. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a FOUP in Kroeker and Toshima in order to transfer wafers between apparatus while isolating them from contaminants as taught by Aggarwal et al.

Allowable Subject Matter

20. Claims 6-8 and 15-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

21. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to fairly teach or suggest a wafer processing system as claimed and comprising a pump coupled only to the first and second single-wafer load locks, the pump being located locally on the wafer processing system (claim 6). Nor does the prior art of record fairly teach or suggest a wafer processing system as claimed and the single wafer support of the first single-wafer load lock includes a pedestal having an integral heating/cooling unit.

Response to Arguments

22. Applicant's arguments filed 2/3/04 have been fully considered but they are not persuasive.

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23. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Examiner admits that neither of the references fairly teaches each of the elements recited in Applicant's claims; hence, they are used in combination. Kroeker fairly discloses the majority of Applicant's invention. However, as admitted in the previous office action, Kroeker fails to teach having two load locks directly connected to a processing chamber. Toshiba fairly teaches this feature and provides motivation for providing this feature in a wafer processing apparatus.

24. With respect to Applicant's argument that Kroeker fails to teach a wafer support as recited in claim 1, as described above, Kroeker does in fact disclose a wafer support. While the disclosed support is not a pedestal as later claimed in claims 7-8 and 15-16, it is a structure that acts as a support as defined in the Merriam-Webster Online Dictionary (<http://www.merriam-webster.com/cgi-bin/dictionary>). One of ordinary skill in the art would recognize this fact. No special definition was found in Applicant's specification which would prohibit this characterization. If one exists, Examiner requests the help of Applicant in pointing it out.

25. Applicant's arguments, filed 2/3/04, with respect to claim 6 have been fully considered and are persuasive. The rejection of this claim has been withdrawn. Examiner believes that in the art at issue it is conventional to provide individual or shared pumps in a multi-chamber apparatus (as is evidenced by Kroeker at paragraph 32 and U.S. Patent No. 5,186,594 to Toshiba at column 2, rows 49-58). The Toshiba patent also discloses that it is conventional to provide pump(s) locally in the same block of text. However, Examiner does not believe that the prior art fairly suggests *two single wafer load locks in a multi-wafer chamber apparatus sharing a pump while other chambers have separate pumping means and the shared pump being located locally on the wafer system*, as claimed.

26. Applicant's arguments, filed 2/3/04, with respect to claims 7-8 and 15-16 have been fully considered and are persuasive. The wafer support disclosed in the cited art is not a pedestal as claimed in these claims. Additionally, because it is not a pedestal it would not be obvious to provide a heating

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and/or cooling plate in support. As argued by Applicant, the Kroeker structure is not configured to house a pedestal.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 571.272.1440. The examiner can normally be reached on Monday-Friday, 8:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 571.272.1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

km
15 April 2004


Parviz Hassanzadeh
Primary Examiner
Art Unit 1763